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**AGRICULTURE**

**No. 152**



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14 July 1981

## CHINA REPORT

## AGRICULTURE

No. 152

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## I. GENERAL INFORMATION

## BRIEFS

FENGYANG COUNTY SUMMER GRAIN--Hefei, 13 Jun (XINHUA)--The peasants in Fengyang County, Anhui Province, have reaped a bumper summer grain harvest with total output reaching 250 million jin, a 26 percent increase over that of last year. Since the start of production responsibility system in the county, the masses reaped bumper wheat harvests for 3 consecutive years. The total wheat output was 170 million jin in 1979, 198 million jin in 1980 and 250 million jin this year. The masses cultivated 800,000 mu of wheat last year. [OW221433 Beijing Xinhua Domestic Service in Chinese 0039 GMT 13 Jun 81]

BOXIAN COUNTY WHEAT PRODUCTION--Hefei, 16 Jun (XINHUA)--Despite some difficulties caused by dry spell, Boxian County, Anhui, has reaped a bumper wheat harvest from its 1.31 million mu of wheat fields this year. The county's total wheat production amounted to 320 million jin this year, a 25 percent increase over last year's production, setting an all-time-high record in both total output and per unit area yield. [OW221433 Beijing Xinhua Domestic Service in Chinese 0138 GMT 16 Jun 81]

JIESHOU COUNTY WHEAT OUTPUT--Jieshou County, Anhui, in 1981 reaped good harvest from its 401,800 mu of wheat with per mu yield of 43 jin. Total wheat output this year was 162 million jin. [OW221433 Hefei Anhui Provincial Service in Mandarin 1100 GMT 17 Jun 81]

CSO: 4007/474

## TIMELY ACTION AGAINST SEVERE DISEASE, INSECT OUTBREAKS URGED

Fuzhou FU'IAN RIBAO in Chinese 3 Jun 81 p 1

[Article: "Act Posthaste to Prevent and Control Diseases and Insect Pests; More than 3.3 Million Mu of Early Rice in Province Afflicted With Diseases and Insect Pests; Problem of Blind Fertilization and Use of Pesticides by Some Peasants Merits Attention"]

[Text] Editor's Note: This year rice blast on the early rice crop broke out early, quickly, and over a wide area of Fujian Province. The least bit of carelessness, particularly during the current continuously overcast and rainy weather, which is extremely favorable for the spread of rice neck blast, can produce ruinous losses. Following institution of a system of responsibility for production, the enthusiasm for prevention and control of diseases and insect pests among the peasantry has been very high. Leaders in all jurisdictions must intensify specific guidance, organize farm technicians to make the rounds on inspection, and organize prevention and control work in accordance with the different forms of a system of responsibility. Commercial supply and marketing departments should do a good job of allocation and supply of needed pesticides and pesticide devices for use on wide areas. Transportation departments should promptly transport pesticides and such materials to the grassroots levels. While taking in hand the prevention and control of rice neck blast, all jurisdictions should also prevent and control second generation rice stem borers, leaf rollers, and sheath and culm blight of rice.

The correspondent obtained the following from the Provincial Department of Agriculture. The area afflicted with diseases and insect pests of the early rice crop now amounts to more than 3.3 million mu throughout the province. The spread of rice blast has been particularly rapid, and poses a great threat to the growth of rice during the mid and late season. Government leadership organizations have turned their attention to the work of prevention and control of diseases and insect pests, and have intensified technical guidance to the peasantry to assure a bumper early rice crop output.

Reports from all over characterize this year's early rice crop disease and insect pest infestations as follows: Early onset with rapid development over a wide area. This situation is attributable to the following two reasons: 1. A generally larger



number of insects overwintering everywhere than in previous years. Since March, temperatures in Fujian Province have tended to be high. Active accumulated temperatures everywhere have been between 120°C and 180°C higher than last year. Since mid-April there has been much alternating clear and rainy weather, high temperatures and high humidity, favoring the breeding and spread of diseases and insect pests.

2. Technical farm guidance has not kept pace, particularly in places where production has been contracted to households or to work teams where the proportion of "households lacking techniques" is great. In some places rice seedlings were planted too densely, and in some places large and small clumps were planted, or seedlings were weak. After transplanting, nitrogenous fertilizer was blindly applied, making the rice seedlings overly tender and green. For example, at Qiwei Brigade, Qiwei Commune in Longqi County, a commune member had contracted production for 7 mu of grainfields. The previous crop grown on this land had been Chinese milk vetch. After transplanting the rice shoots, he continuously fertilized with 600 jin of ammonium carbonate. Now diseases are rampant on this 7 mu of land.

Provincial Department of Agriculture experts believe on the basis of the new situation in this year's growth of the early rice crop, that each jurisdiction should teach commune members to change from the old concept of lots of water and ample fertilizer bringing increased output to scientific use of fertilizer and improvement in water and fertilizer management during the mid and late stages of growth of the early rice crop. Right now in most areas the early rice crops have entered the 4 to 6 [leaf] stage when the young panicles differentiate. This is when dryness of the fields should be alternated with wetness. During the stage of panicle formation and blossoming, a shallow layer of water should be maintained on the fields, and after the in-the-milk stage, premature withdrawal of water is to be guarded against. In fertilizing, fertilizer should be applied only as seedlings appear to need it. In no case should too much be given nor should emphasis be placed on fertilizing with nitrogenous fertilizer. This is to prevent the plant from remaining in the vegetative growth stage and to help prevent diseases and insect pests. During the late stage of the early rice, fertilizer should be applied to the foliage of the plants to prevent their early degeneration. It is necessary, additionally, to give attention to fertilization with potash and phosphate in order to change the proportion of carbon to nitrogen in the plants, thereby increasing the fibrousness and woody quality of the plants' cell walls so that the tissues in the neck of panicles and in the branches will be strong and their resistance to disease enhanced.

Secondly, good monitoring and reporting of diseases and insect pests must be done, and guidance given the peasants in scientific use of pesticides. The peasants are presently very much concerned about prevention and control of diseases and insect pests, but they lack knowledge of plant protection. The Yuanfeng No 1 Brigade of Huyang Commune in Shanghang County has 4.5 mu of ricefields on which rice blast broke out. Commune members vigorously sprayed it with pesticides, with the result that more than 20 yuan per mu was wasted on pesticides. The Provincial Farm Resources Company reports that the sale price of pesticides has multiplied this year and that individual jurisdictions are buying up pesticides. The Aojiang Supply and Marketing Commune in Lianjiang County had 500 dan of leafhopper spray in storage when suddenly a production team bought 150 dan of it. Naturally commune members then bought the pesticide, but not all of it went on the fields necessarily. Nevertheless, blind use of pesticides is a fact of life. Every jurisdiction must intensify technical guidance for prevention and control of diseases and insect pests, making full use of the role of brigade and production team plant protection personnel and specialized



insect control teams, promptly and correctly mastering the disease and insect pest situation, and prescribing the pesticides that will do the job to increase effectiveness of prevention and control.

In addition, they should seize opportunity to do prevention and control work on rice neck blast in advance. The stage when the early rice is about to form panicles is the time when it is most prone to infection with neck blast. Once rice neck blast occurs, losses will be ruinous. Right now, rice leaf blast is continuing to spread through the fields, and acute disease spots have already appeared on boot leaves and pulvinuses. Large numbers of disease germs exist, and this plus the continuously overcast and rainy weather means that conditions are ready for the outbreak and spread of rice neck blast on the early rice crop. The situation is quite serious. Much depends on the period of treatment in the prevention and control of rice neck blast, the most important time for spraying with pesticide being the early stage of panicle formation. In no case should spraying be delayed until outbreaks of rice neck blast occur. In light of the disease situation this year and experience in prevention and control during former years, disease areas should spray once before the panicles emerge and gain once the panicles are fully formed. In areas of serious disease infestation, when the ricefields are in the late booting stage, spraying should be done once. When panicle are half formed, spraying should be done a second time. When panicles are fully formed, another spraying should be given for a total of three separate sprayings. Therefore, it is necessary to organize and train the masses in advance so that the time for spraying will not be missed as the only way of getting good results.

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CSO: 4007/461

## SPRING PEANUT AREA INCREASED

Fuzhou FUJIAN RIBAO in Chinese 23 May 81 p 1

[Article by Wang Zicheng [3769 1807 4453]: "Province's Spring Peanut Growing Area Increased by Almost 30,000 Mu To Provide More Edible Oil for Cities and Countryside"]

[Text] Spring planting of peanuts is finished throughout the province, and the area planted amounts to 1.105 million mu, an almost 30,000 mu increase over last year.

Peanuts are Fujian Province's principal edible oil crop, and this year the principal spring peanut growing areas have adhered to the principle of "absolutely no slackening in grain output while giving heavy attention to diversification." They have made the most of natural advantages, and have adapted general methods to local situations in an expansion of the spring peanut growing area. In addition, most areas have instituted systems of responsibility for production linking remuneration to output to arouse the initiative of commune members. All areas report rapid progress in the planting of spring peanuts this year, a concentration of seasonal effort, quality readying of the fields, ample base fertilizer, large areas planted to superior varieties, and good standards for close planting. All areas have promoted superior varieties, "Yueyou 551" and "Yuexuan 58", and Tongan County 90 percent of the total area planted has been planted to superior varieties. The area planted to "Yueyou 551" in the province amounts to more than 600,000 mu, or more than one-half the area planted to peanuts. In addition, each locale has made full use of the soil by going in big for intercropping. Longqi and Jinjiang prefectures have expanded the area of peanut and sugarcane intercropping, each of them intercropping almost 310,000 mu. Jianyang Prefecture has also intercropped more than 2,300 mu. Right now all jurisdictions are improving field care, and the peanuts are growing well.

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CSO: 4007/461

FUJIAN

BRIEFS

SHOUNING COUNTY ANIMAL HUSBANDRY--As of the end of March, Shouning County, Fujian, had raised 6,400 cattle, 18,000 goats and 149,000 rabbits. [Fuzhou Fujian Provincial Service in Mandarin 1120 GMT 15 Jun 81]

CSO: 4007/474

HEBEI

BRIEFS

BEIJING EGG PROCUREMENT--Suburban Beijing has actively developed the raising of chickens by commune members. In the first 5 months of this year, some 25.90 million jin of fresh eggs was procured, or 13 percent more than in the corresponding period of last year. [OS261405 Beijing Domestic Service in Mandarin 1200 GMT 23 Jun 81]

CSU: 4007/475

## BRIEFS

**SOWING OF ECONOMIC CROPS COMPLETED**--Sowing of sugarbeets, flax, and minor oil-bearing crops is virtually completed in Heilongjiang, and flue-cured tobacco is in process of being transplanted from seedling beds to open fields. The moisture situation is good this year; fields have been planted especially well, and the seedlings that have come up early are both even-growing and succulent. Their growth is heartening. Some places have already begun to furrow deeply and to weed, plow and bank soil around the crops. This year's economic crop production was undertaken according to a plan whereby growing of ample grain was first assured. All production units signed separate spring contracts with foreign trade, light industry, and supply and marketing departments. The contracts specified area of planting, output, and quantities to be purchased. However, reportedly as the result of failure to strictly enforce contracts by some departments, the actual area planted to sugarbeets, flax, and minor oil-bearing crops exceeds plan. This may cause problems for processing and marketing departments, and departments concerned should give attention to this. The area planted to flue-cured tobacco, which the country very much needs, and the area planted to oil-bearing peanuts, which is a new departure for Heilongjiang Province, has been increased over last year by from one to two fold. As a result of various forms of a system of responsibility for production widely instituted everywhere, all contracting teams or operating teams have been careful in planting. Most of the various economic crops have been planted in the period for high yields, and the sowing period for sugarbeets, and flax was 10 days shorter than last year. Additionally, the quantity of chemical fertilizer used increased, and the area planted to superior varieties was enlarged. Close planting, and disinfection of seeds were measures widely used. Advanced techniques such as use of plastic sheeting to cover the ground where tobacco and peanuts were to be grown, and the use of paper tubes around transplanted sugarbeet seedlings were demonstrated and promoted over wide areas. [Text] [Harbin HEILONGJIANG RIBAO in Chinese 26 May 81 p 1] 9432

## BRIEFS

**ELECTRIC DRAINAGE STATION**--The (Zhuangzhuang) electric drainage station, the largest electric drainage station in Henan, was recently completed. The station is located in Taiqian County. This station is built to drain some 5,000 square kilometers of waterlogged fields at the upper reaches of the Jindi River and plays an important part in combating natural disasters and winning bumper agricultural harvests. The total installed capacity of this station is 6,700 kilowatts. [HK221444 Zhengzhou Henan Provincial Service in Mandarin 1100 GMT 2 Jun 81]

CSO: 4007/475



## BRIEFS

**FORESTRY MEETING**--The Jiangsu provincial forestry work meeting lasted 6 days and concluded on 21 June in Luhe County. Zhou Ze, secretary of the Provincial CCP Committee and vice governor of the province, came to the meeting to listen to reports delivered by some model units. In a speech made before the close of the meeting, he analyzed the current situation of forestry work in Jiangsu and set forth measures to speed up work in the future. [OW221137 Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 21 Jun 81]

**SHENYANG COUNTY SUMMER GRAINS**--Jiangsu's Shenyang County has increased its output of summer grains this year by more than 2 million jin over 1980. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 17 Jun 81]

**YANGZHOU PREFECTURE COTTON**--Yangzhou Prefecture, Jiangsu, has 770,000 mu for cotton. It is using plastic sheets for raising and transplanting cotton seedlings on 550,000 mu, which is 100,000 mu more than last year. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 19 Jun 81]

**SUINING COUNTY WELLS**--Suining County, Jiangsu, has more than 8,400 pump wells, of which 6,500 have been outfitted with accessories. The completed wells can irrigate 500,000 mu of land, accounting for one-half of the irrigated land in the county. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 16 Jun 81]

**PROFIT OF FISHERY FARMS IN JIANGSU INCREASED**--State-operated fishery farms in 64 counties and cities in Jiangsu made a profit of 3.27 million yuan in 1980, over 3 times as much as in 1979. This is the result of better management and the adoption of financial responsibility and specialized-job contract systems. [Nanjing XINHUA RIBAO in Chinese 13 May 81 p 2]

**DROUGHT CONTINUES IN JIANGSU**--Drought continues in Xinyi, Fengxian, Donghai and Gongyu counties of Jiangsu. Rural cadres and commune members are now engaged in an anti-drought struggle to protect their wheat, barley, naked barley, peanut and rice crops. [Nanjing XINHUA RIBAO in Chinese 13 May 81 p 1]

**RESPONSIBILITY SYSTEM CONSERVES FUEL**--The implementation of a responsibility system in the management of farm machines helped Jiangsu conserve more than 37,000 tons of fuel in the past 2 years. [Nanjing XINHUA RIBAO in Chinese 13 May 81 p 1]

**DROUGHT REPORTED IN YANCHENG**--Anti-drought measures were needed on over 2.5 million mu of cotton in Yancheng Prefecture of Jiangsu to protect cotton seedlings. This represents more than 75 percent of the total direct-seeding area. The dry spell started in late April at the beginning of the cotton sowing period. [Nanjing XINHUA RIBAO in Chinese 15 May 81 p 1]

BRIEFS

**LIVESTOCK PRODUCTION**--Despite serious natural calamities, the livestock production front in Nei Monggol Autonomous Region has scored good results in combating natural disasters and protecting livestock. According to statistics compiled in early June, over 8.38 million young livestock had survived. The survival rate was 90.7 percent, 2.8 percent over that in the corresponding 1980 period. [SK252222 Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 24 Jun 81]

**LATE AUTUMN CROPS**--Western Nei Monggol Region recently received rain. Peasants are planting late-autumn crops. By 25 June, some 1.9 million mu of plums, oats and buckwheat had been planted. Ulanqab league had planted 1.2 million mu of late autumn crops. [Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 28 Jun 81]

CSO: 4007/475

## SHANDONG

### BRIEFS

WHEAT PRODUCTION--Dezhou Prefecture in Shandong Province reaped a bumper wheat harvest this year despite a serious drought. The prefecture, which has 4.6 million mu of wheatfields, registered a 30 percent increase in its wheat output. In Pingyuan County, wheat output and per-mu yield was 48.1 and 68.8 percent, respectively, over those of 1980, although its wheatfield acreage was 15 percent less than in 1980. [SK020800 Jinan Shandong Provincial Service in Mandarin 2300 GMT 30 Jun 81]

CSO: 4007/475

**SEVERE SPRING DROUGHT REPORTED**

[Editorial Report] SHANXI RIMAO in Chinese 22 May 1981 carried on its front page four items on the fine result of joint efforts in four localities of Shanxi in running irrigation facilities during the spring drought to provide water for spring farming. The localities mentioned above were in Shanyin, Huo, Hunyuan and Ruicheng counties. In addition to these items, an editor's note said that the drought conditions were still severe in most areas of Shanxi and the current anti-drought struggle must be continued.

CSO: 4007/476

## BRIEFS

**SUGARBEET AREA EXPANDED**--As of late April, 150,000 mu of sugarbeets were planted in Yanbei Prefecture of Shanxi. Sugarbeet planting is now completed in this prefecture, and the actual sown area is 69,000 mu larger than that of last year. This prefecture, a major sugarbeet producing area in the province, has more than 2.8 million mu of alkaline land that is highly suited to sugarbeet cultivation. [Taiyuan SHANXI RIBAO in Chinese 28 May 81 p 2]

**COTTON SOWING VIRTUALLY COMPLETED**--Over 3.4 million mu of cotton have been planted in Shanxi, thus completing over 95 percent of this year's cotton sowing plan, which calls for 3.6 million mu. As of now seedlings have already emerged on 2 million mu. The major cotton producing areas had some rainfall just before the sowing. [Taiyuan SHANXI RIBAO in Chinese 15 May 81 p 1]

CSO: 4007/476

## BRIEFS

**EARLY RICE PLANTED IN YIBIN PREFECTURE**--Peasants in Lu, Hejiang, Fushun, Nanxi, Jiang'an and Luzhou counties in Yibin Prefecture along the Yangtze River have planted 842,300 mu of double-cropped (early) rice, an increase of more than 60,000 mu over last year. The transplanting was completed some 10 days earlier than last year, and the seedlings are growing well. Over 90 percent of the early rice is the early-ripening, high-yielding varieties. [Chengdu SICHUAN RIBAO in Chinese 13 May 81 p 1]

**TOBACCO AREA EXPANDED**--Firm plans have been made to plant 268,000 mu of flue-cured tobacco in Sichuan this year, an increase of 21.9 percent over the harvested area of last year. [Chengdu SICHUAN RIBAO in Chinese 7 Jun 81 p 1]

CSO: 4007/476



## EARLY RICE CROP PROSPECTS REPORTED GOOD; LATE CROP WILL REQUIRE EXTRA EFFORT

Hangzhou ZHEJIANG RIBAO in Chinese 6 Jun 81 p 2

[Article by Fang Zaihui (2455 6528 6540), Provincial Department of Agriculture: "Foundation Good for Early Rice Crop Output; Care of Fields Requires Further Close Attention. Seed Quality Poor for Late Rice Crop; Prompt Action Required to Propagate Seedlings"]

[Text] Today is Grain in Ear (6 June) Transplanting of the early rice crop has been completed throughout the province, and work in looking after for the fields is being done with careful attention. As a result of the general establishment and perfection of various forms of a system of responsibility for production everywhere, and the intensification of seedlings this year is better than last year and an ample number of basic seedlings has been transplanted for an increase over last year of between 30,000 and 50,000 more seedlings per mu. Use of green manure fields and basic fertilization of the early rice crop has increased by between 1,000 and 2,000 jin per mu over the previous year, and a great decrease has taken place over previous years in the use of "bleached fields" (4790 4101 3944) where early rice has been planted or winter crop fields without addition of organic fertilizer as a base. As a result of the strict attention given to care of the fields, plus less rainfall and ample sunshine, and the rather suitable temperatures with rapid development of seedlings following transplantation, the current growth situation is generally better than last year.

Right now, the early rice crop is steadily entering the stages of young panicle differentiation and booting. This is a key period for assuring ample panicles, for large panicles, and for winning high and consistent output. In green manure early rice fields, seedlings of the early rice crop are quite numerous; the coefficient of leaf surfaces is large; the period when the rows close has come early; and the process has been attenuated. Meanwhile, in the winter crop fields where rice has been planted, because of the fairly high temperatures during the time they were in seedling beds, seedlings in many places exceeded the proper leaf age. Furthermore, there was an excess of accumulated temperatures, so very possibly tardily planted fields will form panicles early and panicles will be small. In some places, outbreaks of insect pests such as paddy borers and rice thrips have occurred early and very heavily, and sheath and culm blight has also begun to break out and to spread. The area of sources of bacteria left over from last year for bacterial blight is extensive, so danger of outbreaks of bacterial blight this year still exists. Consequently, use of fertilizer, draining of the fields, and such farming activities must be kept

up, with adjustments made to the conditions of the fields and seedlings, and the adoption of control countermeasures. For early rice planted in green manure fields, except for urgent supplemental fertilization with proper amounts of panicle and grain stage fertilizer where seedlings have yellowed from lack of fertilizer, usually one can only apply fertilizer to the leaves. Early applications of top dressing should be made to rice growing where winter crops have been harvested. Suitably heavy fertilization should be made in fields that have been tardily transplanted and contain over-age seedlings. Use of too much nitrogenous fertilizer applied too late should, however, be guarded against so as to prevent a series of maladies such as remaining in the vegetative growth stage, delayed ripening, or severe outbreaks of diseases and insect pests. It is necessary to act in accordance with the state of the seedlings making sure that "when the seedlings are ready not to wait any longer, and when the time has arrived not to wait for the seedlings," to drain the fields at the right time, and to control seedlings early so as to increase the heading rate, guard against the spread of sheath and culm blight, and intensify chemical prevention and control work against diseases and insect pests. In recent years, barnyard grass has spread fearfully, and this year it has sprung up everywhere, requiring reinforcement of the system of responsibility to make specific people responsible at specific times in specific fields for specific remuneration to get rid of the barnyard grass.

Sowing of seeds to grow seedlings for continuous cropping of the late rice crop will begin continuously from north to south during the end of the first 2 weeks in June. This year the hybrid rice areas is larger than last year, and the area planted to superior late geng rice has also increased. Many years experience has shown remarkable increases in output from increased seedlings and increased panicles. This, plus the ample quantity of seeds this year, means that every jurisdiction should increase the quantity of seeds used per mu. Last year the principal late geng rice growing areas were stricken with disasters, so seed quality was poor, disease grains numerous, a lack of plumpness, and both sprouting power and sprouting rate low. Therefore, it is necessary to adapt general methods to local situations, give strict attention to the distribution pattern for late rice varieties, perform experiments with seed sprouting, disinfect seeds, and not only determine the quantity of seeds to be used on the basis of the sprouting rate, but also act in every way possible to grow sturdy seedlings as the key link in increased output. General methods must be adapted to local situations in promoting "three seedlings to form a group," with sparse but even sowing to reduce the quantity of seeds sown, and to achieve results in regulation of the season, improvements in quality, and fighting against disasters for high output. Actively promote application of furan powder around the roots in seedling fields to prevent insect pest and sparrow damage in seedling fields.

The situation in early grain production is also good. Interplanted spring corn has been planted on time and been taken care of as spring grain has been harvested. Transplanting of sweet potato seedlings is at its height, and quality of farming is everywhere improved. This year rather more soil was added from elsewhere than in recent years, and applications of chainao [2693 5207] organic fertilizer was increased. Tongmiao [5671 5379] are ample, and transplanting is being done rapidly. Some prefectures have also interplanted bean, vegetable, and melon crops to begin diversification while not slackening on grain output. Now it is necessary, depending on intercropping characteristics, to give commensurate cultivation and care to promote increased output and an increased harvest.

## II. PUBLICATIONS

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December 1980--Rainfall Below Normal in Most of China.  
Temperature High in Western and Low in Eastern Parts.....  
Zhang Shangyin and Fan Yongxiang (46)

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CSO: 4007/401

Agricultural Research

AUTHOR: HUANG Fengxin [1806 7364 0207]

ORG: Shigu Agricultural Station, Gaoshou County

TITLE: "Results and Essential Cultivation Technique of Shanyouliu in Hainitian [Black Mire Field]"

SOURCE: Guangzhou GUANGDONG NONGYE KEXUE [GUANGDONG AGRICULTURAL SCIENCES] in Chinese No 3, 8 May 81 pp 6-9

ABSTRACT: Shigu Commune is in the plain of south Gaoshou County, with 75,000 mu of cultivated land, of which 61,000 mu are paddies and 2/3 of these being black mire [not chernozem.] It is sandy, thin, and leaking water and fertilizer, to form the low yield area of the county. In 1980, the hybrid rice Shanyouliu was tested in 3225 mu of this black mire paddies and some river alluvial paddies. Obvious yield increase of 80-200 mu was obtained in all, regardless of the nature of the soil or the transplanting time. The highest historical yield record of over 1,000 was reached. The result was not only great in the fertile alluvium; the yield increase was also very great in the black mire. Detailed data of the performance of this hybrid, the origin of the hybrid, and the essential technique of cultivating it in the black mire paddies are explained.

AUTHOR: XU Xianming [1776 5029 2494]  
LIU Jingmei [0491 2529 2734]  
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ORG: All of Plant Protection Center, Guangdong Provincial Academy of Agricultural Sciences

TITLE: "Research on Rice White Withering [Bacterial Leaf Blight] Strains in Guangdong"

SOURCE: Guangzhou GUANGDONG NONGYE KEXUE [GUANGDONG AGRICULTURAL SCIENCES] in Chinese No 3, 8 May 81 pp 17-22

ABSTRACT: From a collection of rice leaf blight pathogens, 211 strains are isolated. Using China's 5 standard breeds, 5 bacterial groups are identified. The rate of appearance is the highest for Group IV, amounting to 47.39 percent, followed by Group III, amounting to 23.22 percent. This fact indicates that these are strong strains and extensively distributed throughout the province. Group V, which is similar to the strong strains of Southeast Asia and capable of infecting the highly resistant breed IR26, has just begun to appear in Guangdong, amounting only 3.79 percent. The difficulty of breeding bacterial leaf blight resistant rice in Guangdong; therefore, lies in the complexity of breeding resistance to, at least, all these 3 groups. The existing major breeds of the province are all susceptible to the dominant strains (Group IV.) It is very urgent to find new source of resistance and strengthen the breeding work.



AUTHOR: Mantian Jiurui [transliteration of Japanese Name]

ORG: None

TITLE: "Research on Simple Storage Method for Seeds of Rice, Wheat, and Peanut"

SOURCE: Guangzhou GUANGDONG NONGYE KEXUE [GUANGDONG AGRICULTURAL SCIENCES] in Chinese No 3, 8 May 81 pp 42-44

ABSTRACT: This paper describes experiments on techniques of storing seeds of rice, wheat, and peanut in separate sections. The different requirements for storing these seeds are explained separately to produce different principles of storing these seeds. The paper originally appeared in RESEARCH REPORT OF QIANYE COUNTY transliteration of Japanese place name] SEED FARM, No 1, 1979 pp 1-15. It is excerpted and translated by HUANG Chilin [7806 3589 2651.]

6248

CSO: 4009/326



AUTHOR: NIU Dashui [3662 1795 3055]

ORG: Research Institute of Genetics, Chinese Academy of Sciences

TITLE: "Foster-Mother Technique of Cultivating Hybrid Embryos"

SOURCE: Beijing NONGYE KEJI TONGXUN [AGRICULTURAL SCIENCE AND TECHNOLOGY NEWSLETTER] in Chinese No 4, 81 p 3

ABSTRACT: Traditionally, young embryos are placed directly on the medium for culture. Some natural extracts, such as coconut milk, corn or wheat endosperm, etc. are often added to the medium to improve its nutrients for promoting the growth of the embryo. On the basis of summarizing experiments of other scientists, a scientist of Denmark has designed a foster-mother technique by using live endosperm. With this technique, live extracorporeal endosperm is inoculated onto the surface of the medium and the embryo is placed on the endosperm. The author and colleagues experimented with this technique. From 3 groups of hybrids of wheat and oats, the fruiting rates are more than 3 times higher than the traditional medium technique. The experimental procedure and the experience are reported.

AUTHOR: GAO Jingchang [7559 2529 2490]  
Li Sixian [2621 1807 6943]

ORG: Both of Jiaonan County Agricultural Technology Station, Shandong Province

TITLE: "Intercropping in Stages to Increase the Yield of Corn"

SOURCE: Beijing NONGYE KEJI TONGXUN [AGRICULTURAL SCIENCE AND TECHNOLOGY NEWSLETTER] in Chinese No 4, 81 p 7

ABSTRACT: Jiaonan County is in a coastal hill region. The flooding time comes early and the high temperature season is short. The summer corn acreage had been small and the yield low. Since 1976, an experiment has been carried out and extended to intercrop intermediate and late ripening corn varieties in wheat fields in different stages. The spring corn is intercropped at about 50 days before the wheat harvest; the semi-summer corn is intercropped at about 30 days before the wheat harvest if the wheat yield is 4-500 jin/mu; in wheat fields of a yield of 600 jin/mu, summer corn is intercropped about 10 days before the wheat harvest. Since then the corn acreage and the yield of corn have been raised steadily year after year. Details of the technique and the yield increase results are reported.

AUTHOR: None

ORG: Tongshan County Bureau of Agriculture, Jiangsu Province

TITLE: "Transplanting Strong Sweet Potato Seedlings Produces High Yield"

SOURCE: Beijing NONGYE KEJI TONGXUN [AGRICULTURAL SCIENCE AND TECHNOLOGY NEWSLETTER] in Chinese No 4, 81 p 13

ABSTRACT: The quality of sweet potato seedlings directly affects the yield. According to experiments in the county for the past several years, strong spring or summer seedlings produce 10-35 percent higher yield than weak seedlings. Spring sweet potato seedlings should measure 7-8 cun in height and weigh more than 1.5 jin per 100 seedlings. Summer sweet potato seedlings should measure about 7 cun, and weigh more than 4 jin/100 seedlings. The technique of cultivating seedlings reaching these indices to qualify them to be called strong seedlings and the reason why these characteristics are important in bringing about high yield are explained.

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ORG: All of Shanxi Provincial Research Institute of Cotton

TITLE: "Technique of Thin Plastic Film Cover in Cotton Culture"

SOURCE: Beijing NONGYE KEJI TONGXUN [AGRICULTURAL SCIENCE AND TECHNOLOGY NEWSLETTER] in Chinese No 4, 81 pp 18-19

ABSTRACT: Since the establishment of the nation, the unit yield of cotton in Shanxi had dwelled at 30-40 jin/mu. Analyses revealed the 3 problems of low temperature, aridity, and thin soils. Aimed at resolving these problems, the authors began in 1976 to study the technique of applying a thin plastic film to cover the cotton field at the institute and have obtained obvious results. In the past 5 years, the technique has been tested and demonstrated in many paddy and dry fields and the increase of unit yield has been phenomenal, averaging 77.1 percent. Reasons for the success of the technique are explained. The key to the technique is introduced to be: (1) The film cover protects the moisture and the fertiliser; (2) Quick germination (5-6 days) allows planting to be suitably late; (3) Early development permits the use of breeds of long effective boll formation period; (4) Management is easy as it is limited to good land leveling and maintaining good cover.

AUTHOR: LIN Xin [2651 2500]

ORG: Shanxi Provincial Research Institute of Cotton

TITLE: "Brief Introduction of New Early Ripening Line of Cotton, Yunheita, to be Planted in the Summer"

SOURCE: Beijing NONGYE KEJI TONGXUN [AGRICULTURAL SCIENCE AND TECHNOLOGY NEWSLETTER] in Chinese No 4, 81 p 19

ABSTRACT: For the purpose of meeting the requirement of the southern part of the province to change to a 2-crop system of wheat and cotton, the institute has produced a specially early ripening line, the Yunheita, through interbreed hybridisation. Yunheita has plump seeds that are easy to germinate but have a relatively thick coat. When they are planted in the summer after the wheat harvest, they must be thoroughly presoaked. The field must also be kept moist at all times. The growth and development period of this breed is short [the paper does not mention the number of days, however.] In the high altitude and cold areas of central and southeastern Shanxi, it is suitable for spring planting in one crop cotton fields. In Yuncheng District, it may be planted after the wheat harvest in early Jun if attention is given to quick harvesting and planting. The research institute will supply scientific research units with free seeds, charging a small amount for packaging and mailing.

AUTHOR: Li Wende [2621 2429 1795]

ORG: Zhangjiakou Special School of Agriculture, Hebei Province

TITLE: "Using Bacterial Insecticide to Prevent and Control Corn Borer"

SOURCE: Beijing NONGYE KEJI TONGXUN [AGRICULTURAL SCIENCE AND TECHNOLOGY NEWSLETTER] in Chinese No 4, 81 p 34

ABSTRACT: Some varieties of *Bacillus thuringiensis* Berliner have multiple toxins to form one of currently very promising insecticides. In 1977-78, the author carried out indoor and outdoor tests at Zhulu County Seed Farm; again in 1979-80 the Zhulu County Bureau of Agriculture carried out large acreage tests with 3 types of varieties, 10-1, 77-1, and 7216, to prevent and control corn borers. The bacterial insecticide powder may be made with native methods. The effect is close to 5 percent DDT and obviously better than 666, while the problem of environmental pollution from residual chemicals may be lessened. Some indoor and field test data are included.

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QSO: 4009/330

AUTHOR: WANG Jingju [1769 2417 7467]  
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ORG: Both of the Institute of Botany, Chinese Academy of Sciences

TITLE: "Cytological Studies of the Embryogenesis of Hybrids between Oryza sativa L. x Pennisetum sp."

SOURCE: Beiling ZHIMU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 2, Mar 81  
pp 104-109

TEXT OF ENGLISH ABSTRACT: (1) The pollen grains of Pennisetum can germinate normally on the stigma of rice and the pollen tubes can grow into the style and enter the embryo sacs. However, the process of double fertilization is slow and more or less abnormal, and the phenomenon of simple fertilization occurs often. (2) It has been found that in the majority of cases the development of the embryos is slow and stays in the stage of globular embryos for a long time, thus the differentiation of the embryos is very difficult and degeneration of the embryos appears many times. Simple differentiation was observed only in some embryos during 16-24 days after pollination. Normal differentiating and developing embryos were not observed. The cause of the degeneration of the embryos is related to the state of endosperm development and also to the non-coordination of the genomes of both parents. (3) The development of the endosperm is abnormal. The change from the free nuclei into the cells in the endosperm is delayed as late as the eighth day after pollination. The whole endosperm tissue is composed of the cell masses which are quite different

[Continuation of ZHIMU XUEBAO No 2, Mar 81 pp 104-109]

both in shape and function, a part of these endosperm cells lacking the ability to synthesize starch. The disintegration of the endosperm could be frequently observed during their development. (4) A lot of starch is accumulated in the nucellar cells near the antipodals. It is shown that there was some metabolic confusion resulting from the crossing in the embryo sacs.

Based on the above-mentioned results, the authors consider that the failure of seed production by crossing is at least related to the nutrient conditions which are essential for the development of embryos. If an embryo culture technique is employed at the early stage of embryo development the hybrid seeds can be obtained.

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ORG: YANG and ZENG both of the Institute of Genetics, Chinese Academy of Sciences; WANG of the Kunming Institute of Agricultural Science, Yunnan Province

TITLE: "Analysis of Peroxidase Isozymes of Waxy Maize from South China"

SOURCE: Beijing ZHIMU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 2, Mar 81  
pp 110-115

TEXT OR ENGLISH ABSTRACT: In this experiment we have tried to make a comparison of analytical peroxidase isozyme of waxy maize from south China using a vertical polyacrylamide gel electrophoretic method. Seventy cultivars (lines) of the waxy maize and other materials were examined. The main results were summarized as follows:

1. Eighteen of the nineteen waxy maize cultivars from the original region of "Mongol Four-row Wax" showed the fifth band of peroxidase isozyme, and one showed a mixed band, having the fourth and fifth bands.
2. Among 15 tested waxy maize cultivars from Yunnan Province, 11 of them showed the 5th band of peroxidase isozyme, 2 showed the 4th band and 2 showed the mixed band.
3. Seventeen of the nineteen waxy maize cultivars from Guangxi Zhuang Autonomous Region showed the fifth band and two showed the mixed band of peroxidase isozyme.

[Continuation of ZHIMU XUEBAO No 2, Mar 81 pp 110-115]

Accordingly, the conclusion might be drawn that most (86.8 percent) of the waxy maize cultivars from south China showed the fifth band of peroxidase isozyme. That is similar to Coix which originates from China. On the other hand, dent maize from the United States showed the fourth band.

The experimental results further demonstrated that Chinese waxy maize (Zea mays sinensis) might have originated in south China. China is not only one of the maize secondary origin centers, but also might be one of the primary origin centers.



AUTHOR: LIU Zhenxiang [0491 2182 5116]  
FU Jiatui [0265 1367 3843]

ORG: Both of the Department of Biology, Zhongshan University

TITLE: "Studies on the Translocation and Accumulation of  $^{14}\text{C}$ -labeled N-Dimethyl-aminosuccinic Acid (Bg) in Peanut Plants"

SOURCE: Beijing ZHIWU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 2, Mar 81  
pp 116-121

TEXT OF ENGLISH ABSTRACT: The  $^{14}\text{C}$ -Bg was used by smearing the surface of the leaf of the peanut plant (*Arachis hypogaea* L.) during the flowering stage and pegging stage. The results obtained with the measurement of radioactivity were as follows: The incorporation of Bg into the peanut plant was very fast, and the radioactive isotope was very much accumulated in the leaf of the main stem one hour after treatment. Four hours after treatment, Bg was also very much evident in the flower. After three days the radioactive isotope was accumulated in the organs of the peanut plant up to the maximum amount. In the pegging stage the translocation of Bg into the organs of the peanut plant was faster than that in the flowering stage, having the maximum amount of accumulation in the first day. The rate of outflow of Bg from the smearing leaf was high.

It was shown that the radioactivity was mainly concentrated in the young tissues of stem and leaf, and in the flower and small pod. By using microautoradiography,

[Continuation of ZHIWU XUEBAO No 2, Mar 81 pp 116-121]

the radioactivity was translocated through the vascular bundle in the petiole and stem of the peanut plant. Later, it was chiefly distributed in the cortex of the stem and the palisade tissue of the leaf. In the flower, the  $^{14}\text{C}$ -Bg was first found in the vascular bundle of the filament and the petal. After three days, the radioactive isotope was transported into the pollen grain and concentrated in the inner wall of the pollen sac.

The chromatogram of the radioactive matter extracted from the peanut plant showed that the compound of Bg was biochemically stable and was not easily degraded in the peanut plant.

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TITLE: "Studies on the Rate of Photosynthesis and Photorespiration in Wheat"

SOURCE: Beijing ZHIWU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 2, Mar 81  
pp 122-126

TEXT OF ENGLISH ABSTRACT: 1. The rate of photosynthesis in various types of wheat was ordered in descending scale as follows: wild type, spring, winter and local varieties. The increase in amount in the rate of photosynthesis depended on the course of growth and development of the wheat plant itself. It reached a maximum at the flowering stage, and thereafter decreased gradually. The curve of the rate of photosynthesis was of the uni-peak type. 2. The rate of photosynthesis in wheat leaves was higher in the upper leaves than in the lower ones. It was raised to a maximum in the flag leaves. The rate of photosynthesis in flag leaves of 61 cultivars was  $28.44 \text{ mg CO}_2/\text{dm}^2 \cdot \text{hr.}$ , on the average, and the range of variation was 19.97 to  $32.66 \text{ mg CO}_2/\text{dm}^2 \cdot \text{hr.}$  The difference of the rate of photosynthesis among varieties was significant. In 21 cultivars the rate of photosynthesis was, on the average,  $8.11 \text{ mg CO}_2/\text{dm}^2 \cdot \text{hr.}$ , and the range of variation was from 5.0 to  $14.0 \text{ mg CO}_2/\text{dm}^2 \cdot \text{hr.}$ , with a significant difference occurring.

[Continuation of ZHIWU XUEBAO No 2, Mar 81 pp 122-126]

3. The light compensation point of flag leaves of wheat plants was about 700 Lux. At this time, with increasing light intensity the rate of photosynthesis was also raised. The saturation point of light was about 50,000 Lux. The light intensity was further increased, causing the rate of photosynthesis to decrease. On the other hand, it was found that the rate of photorespiration did not decrease. 4. In different years and under different environmental conditions the rate of photosynthesis varied among different cultivars of wheat, but the order was basically the same. The difference was not significant.

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CNO: 4609/284



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ORG: WU, BAI, LI of Department of Geophysics, Beijing University; WEI of National Marine Service

TITLE: "A Scheme of Initialization for the Atmospheric Boundary Layer"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 129-140

TEXT OF ENGLISH ABSTRACT: In large-scale synoptic conditions and the physical properties on the 850 mb level, the surface is used as the external parameters. We treat particularly the lower part of the boundary layer in which the effects of the stratification are considered. The higher part, in which it is assumed that the geostrophic winds vary linearly with height, is divided into 15 equal intervals of length. Matching the wind fields of the two parts we set up a steady-balance initial value model. Taking the results obtained above as the guess fields and utilizing the observed wind data on the 1500, 900, 600, 300 m levels and the ground, we proceed in dynamic adjustment and try to constitute the initial values of the boundary layer to approximate the actual atmospheric state.

[continuation of QIXIANG XUEBAO No 2, 1981 pp 129-140]

In this paper, the effects of some physical parameters in the atmospheric boundary layer are analyzed by use of the model constituted above and the choice for the vertical division is discussed. We also describe the adjustment process through integrating numerically boundary layer motion equations. Finally, vertical motion and horizontal wind fields in the boundary layer for the Northern China at 00z, 23 Aug 1966 are presented as an example. It is evident that these results describe detailed structure of the atmospheric boundary layer.

This paper was received for publication on 14 Jul 79.

AUTHOR: LU Peisheng [4151 1173 3932]

ORG: Institute of Atmospheric Physics, Chinese Academy of Sciences

TITLE: "On the Evolution Process of Long Waves in the Barotropic Atmosphere"

SOURCE: Beijing QIXIANG XUNBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 141-149

TEXT OF ENGLISH ABSTRACT: In this paper the evolution process of disturbances superimposed on a barotropic non-uniform (curvilinear in particular) basic current is investigated. The previous work (1) is generalized by means of general treatment both for the longwaves superimposed on basic current with ultra-long waves and the medium or short waves superimposed on basic current with long waves. The main results are as follows: When the wavelength of small trough or ridge is enlarged, its amplitude increases and the disturbance develops. In opposite case, i.e. when the wavelength shortens, its amplitude decreases and the disturbance is damped. As a small and short wave has changed into a long wave, the abovementioned laws become clearer, i.e. the wavelength of developing (damping) longwave increases (decreases) more rapidly. These results might be used to explain some observations of evolution processes of trough and ridge in the real atmosphere. Besides, the evolution of a disturbance is determined completely by its structure, especially by the direction of its axis and its relative position in the basic current. In northern hemisphere, the axis of the developing disturbance is directed NE-SW to the north of the jet stream, and NW-SE to the south of

[continuation of QIXIANG XUNBAO No 2, 1981 pp 141-149]

it; while the axis of the damping disturbance is directed NE-SW to the south of the jet stream and NW-SE to the north of it. These results are in good agreement with the theory of angular transport as well as synoptic experience.

This paper was received for publication on 28 Jan 80.

AUTHOR: WANG Xiaolin [3769 2556 2651]  
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ORG: All of Department of Geophysics, Beijing University

TITLE: "Integration of the Barotropic Primitive Equations Based on the Variational Principle"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 150-156

TEXT OF ENGLISH ABSTRACT: In this paper, a time integral scheme based on the variational principle is presented. The dimensionless form of the primitive equations is taken into account and the sum of the kinetic and available potential energies is used as the variational constraint condition in order to prevent non-linear instability during long-term numerical integration. The results are comparable with those used by other integral methods.

This paper was received for publication on 10 Jul 79.

AUTHOR: LIU Kewu [0491 0344 2976]

ORG: Institute of Atmospheric Physics, Chinese Academy of Sciences

TITLE: "An Application of Spline Interpolation to Objective Analysis"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 157-167

TEXT OF ENGLISH ABSTRACT: By using the spline interpolation, objective analyses of geopotential, temperature, and surface pressure fields are tested and good results obtained. A cubic polynomial for interpolations is given for two adjacent stations by which the problem of two-dimensional analysis can be reduced to a number of one-dimensional interpolations. The algorithm is simple and stable, therefore, suitable for practical use.

This paper was received for publication on 9 Oct 79.

**AUTHOR:** LEI Yushan [7191 7183 7311]

**ORG:** Research Institute of Weather and Climate, Central Weather Bureau, Beijing

**TITLE:** "A Composite Analysis of the Meridional Type Persistent Severe Rainstorms"

**SOURCE:** Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 168-181

**TEXT OF ENGLISH ABSTRACT:** From a composite analysis of 10 cases of meridional type persistent and exceptionally severe rainstorms, it is found that these rainstorms occur ahead of the energy front within a stable synoptic situation with a high pressure in the north and another high pressure to the east. The upper level subtropical jet stream and the lower level jet stream are the dynamic systems supplying the rainstorm with energy, providing the trigger condition for releasing the latent unstable energy, and confining the rainstorm to a meso-scale.

This paper was received for publication on 29 Dec 79.

**AUTHOR:** CHEN Yuxiang [7115 0060 3276]

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**TITLE:** "The Application of Empirical Orthogonal Function to the Diagnostic Analysis of 'Plum Rains' in China"

**SOURCE:** Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 192-204

**TEXT OF ENGLISH ABSTRACT:** In this paper, the advantages and shortcomings of empirical orthogonal function are discussed. This function is applied to the diagnostic analysis of 'plum rains' in China. The results indicate that the empirical orthogonal function is useful in the diagnostic analysis. With this approach, the results in agreement with synoptic analysis can be obtained. This is a statistical method. It can play a greater role in weather analysis and forecast, if it is combined with synoptic and dynamic methods.

This paper was received for publication on 7 Aug 79.

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TITLE: "The Distribution and Variation of Maritime and Continental Giant Salt Nuclei in China"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 205-216

TEXT OF ENGLISH ABSTRACT: This paper analyzes the distribution, the daily variation, and the variation of concentrations from day to day of salt nuclei, observed in Haiyang Island, Dalian, and Beijing, from Sep to Oct 1978. The results show that the concentrations of salt particles are related to the atmospheric humidity, the wind (wind direction and wind speed) and the synoptic situation.

This paper was received for publication on 25 Jan 80.

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ORG: All of Department of Geophysics, Beijing University

TITLE: "Studies on the Ground-based Microwave Radiometry and Its Measurements of the Atmospheric Humidity Profile and Total Water Vapor Content"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 217-225

TEXT OF ENGLISH ABSTRACT: We constructed a 1.35 cm radiometry (22.235 Gc.) Using the reception of 1.35 cm atmospheric noise, the humidity profile and the total vapor content in the atmosphere were obtained. In field test, as compared with radiosonde, the rms deviation of total vapor content was 3 percent, the rms deviations of specific humidity were 17.2 percent below 3 km, and 22.4 percent below 5 km.

This paper was received for publication on 29 Feb 80.

AUTHOR: FU Baoju [0265 2128 3877]

ORG: Department of Meteorology, Nanjing University

TITLE: "On the Calculation of Evaporation From Soil"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 226-236

TEXT OF ENGLISH ABSTRACT:

If  $K$  is the evaporation from soil,  $E_0$  the evaporative power and  $Q$  the possible maximum amount of water which may be supplied by soil for evaporation during given period, we may consider that  $\frac{\partial K}{\partial E_0}$  and  $\frac{\partial K}{\partial Q}$  are some functions of  $Q$ ,  $E_0$  and  $E$ , viz  $\frac{\partial K}{\partial E_0} = F(Q, E_0, E)$ ,  $\frac{\partial K}{\partial Q} = \Phi(Q, E_0, E)$ .

Assuming  $K = E_1 + E_2$ ,  $F(Q, E_0, E) = F_1(Q, E_0, E_1) + F_2(Q, E_0, E_2)$  and  $\Phi(Q, E_0, E) = \Phi_1(Q, E_0, E_1) + \Phi_2(Q, E_0, E_2)$ , we get Eqs (9) and (10).

By applying dimensional analysis and the theory of differential equation we have shown that the forms of  $F_i$  and  $\Phi_i$  ( $i=1,2$ ) are Eqs. (15), and hence derived formula (34).

The relationship between  $\frac{E}{E_0}$  and  $w$  computed by formula (34) is shown in figure 2. It is in good agreement with the measurement by Poppel-evaporation gauge.

[continuation of QIXIANG XUEBAO No 2, 1981 pp 226-236]

This paper was received for publication on 29 Apr 79.



AUTHOR: YUAN Xinxuan [5913 0207 6513]

ORG: Central Weather Bureau

TITLE: "A Synoptic Study of the Southwesterly Low-level Jet Streams South of the Yangzi River"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 245-251

ABSTRACT: Through an analysis of the wind speed data of 1971 and 19 incidents of low level jet streams (defined to be a wind speed of 12 m/s at 850 mb and above, with an axis of 1000 km or longer) in the region to the south of the Yangzi, the author concludes that in the region to the east of the Qinghai-Xizang Plateau the intensity of low-level jet streams is determined mainly by the barometric gradient, while whether or not the wind speed reduces with the altitude is mainly determined by whether or not the temperature gradient and the barometric gradient above the jet stream are in the opposite direction.

This paper was received for publication on 26 Dec 79.



AUTHOR: WANG Dehan [3769 1795 3466]

ORG: Department of Meteorology, Nanjing University

TITLE: "A Study of Rainy Season Classification and Some Related Problems"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 2, May 81 pp 252-256

ABSTRACT: The relative coefficient  $C$  of rainfall of a given xun [every month is divided into 3 xun, a period of ten days, more or less.] is defined as  $C = \frac{\text{the rainfall of that period}}{\text{(the number of days of that period} \times \text{average rainfall of several years)}}$ . When a period, in which  $C$  is  $\geq 1$ , is defined as a rainy peri-

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od and when the frequency of occurrence of two or more consecutive rainy periods in a season is  $\geq 50$  percent in a multi-year statistical computation, the season is defined as a rainy season. The statistical data of rainy periods in the region in China to the east of  $100^\circ\text{E}$  and to the south of  $40^\circ\text{N}$  are analyzed to reveal that at no time the frequency of rainy periods is  $\geq 50$  percent before the middle period of Mar and after the middle period of Oct. A general beginning and end of the rainy season are thus obtained. Geographically speaking, the rainy season begins the earliest in Jiangxi and Northern Guangdong. The rainy season of North China and that of the coastal region of South China come later. The rainy season ends later (as much as 7 ten-day periods later) in North China and South China, compared with

[continuation of QIXIANG XUEBAO No 2, 1981 pp 252-256]

Central China. From the east to the west, the rainy season is earlier in Central China, compared with either the west or the east; the difference is as much as 8 ten-day periods. The traditional assumption of earlier rainy season in the east and later rainy season in the west is contrary to the facts. Even the plateau region is no exception. In Kunming, the rainy season begins in the third ten-day period of May, while Shaoguan and Ganzhou of the same latitude have been in a rainy season since the middle ten-day period of March, and Fuzhou of the east will not begin its rainy season until the first ten-day period of April.

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TITLE: "Sulfur in Soils of Southern China and the Application of Sulfur Fertilizer"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 2, May 81  
 pp 185-193

ABSTRACT: Total sulfur analyses of 208 soil specimens gathered from 7 provinces of Zhejiang, Jiangxi, Guangdong, Guangxi, Sichuan, Fujian, and Guishou revealed that the sulfur contents of soils of S. China vary between 0.001 and 0.072 percent. The relationship between sulfur content and parent material does not appear to be great. Soils of light texture, deficient in organic matter, or waterlogged paddies can become sulfur deficient very easily, however. Aside from soil, rain and irrigation water form the major source of sulfur and sulfur of this source can generally meet the needs of a medium yield. Under certain conditions, as much as 8.6-24 jin/ac of sulfur may be lost through leaching every year; concrete data regarding this condition are not yet available. Effects of sulfur application in some soils are reported. According to the experience of some farmers, application of sulfur to form certain indissoluble sulfides may be used as a technique to remove certain poisonous metal ions. Further study on this matter appears to be warranted.

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TITLE: "Investigation on Factors Affecting the Diffusion of Phosphate in Paddy Soil"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 2, May 81  
 pp 194-198

ABSTRACT: The Olsen technique is used to determine phosphate diffusion coefficients of 3 paddy soils: acid, neutral, and calcareous. Some soil chemical and physical factors affecting phosphate diffusion are analyzed. The diffusion coefficient is found to be greater in calcareous soil, than acid and neutral soils. With respect to phosphate origin, it is found to be greater with  $(\text{NH}_4)_2\text{NPO}_4$  than with  $\text{Ca}(\text{H}_2\text{PO}_4)_2$  or  $(\text{NH}_4)\text{H}_2\text{PO}_4$ . Phosphate diffusion speed is about 100 times higher in a paddy than in a dry field. It is lower in clay, sticky soils. There are many factors affecting the transfer and diffusion of phosphate ions in paddy soils, but it appears that acid soils are less capable of supplying phosphate. Various organic matters can increase phosphate diffusion in ranges varying with type of soil and type of organic matter. Application of decomposed coal reduces the diffusion action of phosphate, however.

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TITLE: "Effect of Different Structures of Paddy Soil on the Nutrient Absorption by Early Rice Plants"

SOURCE: Beijing TUNANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 2, May 81  
pp 199-202

ABSTRACT: Since the change from the wheat-rice 2-crop system to the wheat-rice-rice 3-crop system in Taihu District, the phenomenon of deterioration of soil structure has appeared in some areas. The number of large lumps has increased and the lumps are harder, with greater number of very fine fissures. When the soil is dry, the plow resistance is greater and sprouting and root extension of wheat have been affected. Specimens of soils of this type of deteriorated structure and those of the original structure are used in pot and field tests to determine the effect of structure on the nutrient absorption of early rice plants. Accumulations of nitrogen, phosphorus, and potassium of the early rice plants in soils of structural deterioration are found to be obviously less, the difference in phosphorus is especially noticeable. The differences disappear at ripening time, however, except in case of potassium accumulation. The basic physical-chemical properties of the soil specimens are reported.

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